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## AVAILABILITY OF SCIENTIFIC JOURNALS IN DEFENSE ORIENTED LIBRARIES

James A. Fava

Alexander G. Hoshovsky

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ACKNOWLEDGEMENTS: Thanks are due to the librarians of the participating libraries (See Appendix 1) who gave their time to completing the questionnaire; Capt Charles Back, OAR, for providing mechanical data processing; Major Weyland, OAR, and Dr. Harold Wooster, AFOSR, for the review and criticism of the study.

The opinions and conclusions are those of the authors and do not necessarily reflect the position of the Office of Aerospace Research, or United States Air Force.

## SUMMARY

- We conducted a study for the sole purpose of

determining the extent to which the professional journals containing OAR research results are available in defense-oriented libraries. The study was undertaken because professional journals are the primary distribution medium for much of OAR's work.

- The study was not designed to

judge the effectiveness of libraries, nor should it be used for this purpose. Detailed information on the population served by each library would be first needed to attempt such judgments.

- We tested the hypothesis that

all known professional journals in which OAR sponsored research is published are readily available in the defense-oriented research libraries.

- We found that

universities have an average of 53% of the surveyed journals  
"on shelf" . . . . .

DOD technical libraries carry about 25% . . . . . while

industrial libraries subscribe to only 20% of these journals.

- We conclude that

our findings do not support a contention that the journals containing OAR research results are readily available in defense-oriented research libraries.

- Additional study is needed

to determine the extent that the "on shelf" journals meet the needs of the population served by the surveyed libraries.

## INTRODUCTION

The objective of this study was to determine the availability of the Office of Aerospace Research (OAR) sponsored research to the Air Force Technological Community, when such research is published solely in the open technical journals. Since the results of research may apply across the entire spectrum of Research and Development (R&D), we have included as part of this technological community representative organizations from Air Force laboratories, industry, and educational institutions. Also since the results may apply equally to R&D efforts conducted by the Army, Navy and certain other government agencies, we have included a select number of laboratories or organizations within those agencies.

## UNDERLYING ASSUMPTIONS

In conducting the study we have assumed:

1. The process of peer-group review and evaluation before acceptance of articles by scientific journals sets a high standard of quality control.
2. Since it is OAR policy to support and conduct research in areas of anticipated Air Force technological interests, journal articles resulting from this research contain scientific knowledge relevant to the technical interests of Air Force technological community and to the technical interests of certain other government organizations.
3. That the DoD research and development efforts can be represented by some 295 United States institutions on the OAR mailing list.
4. The future value of any individual articles cannot be predicted; therefore, all such articles should be readily available to the scientists and technologists through their libraries.
5. That the OAR articles published in professional journals are "readily available" to the people in the above institutions only when these journals are

"on-shelf" in the respective technical libraries. Conversely, in view of the known deficiencies of inter-library loans\*, the delays and expense of procuring photocopies from such central resources as the Library of Congress, we assume OAR articles to be generally unavailable when they are not subscribed to by the libraries.

#### THE APPROACH TO THE STUDY

Each of the 295 technical libraries associated with the R&D organizations selected for the study was supplied a list of 522 technical journals listed in TAB A. Each listed journal was selected when our records indicated that the journal contained one or more articles written by OAR supported scientists during the five year period - 1959 to 1964. We were able to identify 5261 articles.

Each librarian was asked either to mark the "on-shelf" journals and return the list or to furnish us with his accessions list. For the latter instances we marked the "on-shelf" journals in the questionnaire. A total of 199 libraries responded and are listed in TAB B\*\*. Thus, the study represents a survey of about two-thirds\*\*\* of the technical libraries to which we sent the list.

#### THE LIMITATIONS OF THE STUDY

This study has some limitations which must be considered along with the indicated results and conclusions.

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\*An internal 1963 report on OAR libraries points out the reluctance of libraries to lend journals to other libraries. Further the fact that a journal is found in a "nearby" library does not mean that a researcher will visit that library just to see if it contains an article of his interest.

\*\*TAB B does not represent the total holdings of the surveyed libraries. Both the ranking and number of journal in each library refers only to journals in which OAR sponsored research was published.

\*\*\*Some of the 295 contacted libraries proved to be branches of a main library which replied. Hence the percentage of return is actually slightly higher.

First, although the OAR sponsored authors typically represent the general scientific community, most of them work in the area of physical sciences, environmental sciences and engineering sciences. The area of life sciences, especially clinical medicine, has received relatively little OAR support with a consequent lack of publications.

Second, the "frequency of publication" (listed in column 2, TAB A) in a given journal is derived from incomplete data; we just simply did not have a complete record of all OAR journal articles. Our best estimate, however, is that some 70% to 80% of all the journal articles during the 5-year span between 1959 and 1964 have been included in the survey.

Third, we made no attempt to determine the number or kinds of journals that individuals subscribe to within a particular R&D organization.

Fourth, while it could be assumed that the libraries subscribe only to journals which contain information relevant to their mission, our data collection procedures did not allow for a test of this assumption.

#### BACKGROUND

The stated mission of OAR is to support research relevant to the Air Force mission; accordingly OAR publication policy aims at insuring that the research results are easily available to those who work on and who contribute to the solution of Air Force technical problems. Normally these people are found in the DoD laboratories, industrial R&D facilities, and at major universities whose members work on Air Force grants and contracts.

A significant aspect of OAR publication policy is that OAR accepts the publication of research results in any of the professional journals as the author's

fulfillment of his obligation to report the findings. This policy is based on three propositions.

1. It is generally assumed that the built-in editorial and "review-by-peers" process assures that only new and significant information is reported.

2. Although many new findings are disseminated by word of mouth and such media as New York Times and Aviation Week, the journal literature provides a permanent, searchable, widely disseminated, quality controlled record of such findings.

3. Publication of results of research in scientific journals is the normal way of life of the scientific community in general. OAR recognizes this fact in this acceptance of reprints of journal articles as full and complete substitutes for technical reports. The problem of making these results widely available to the DoD Technological Community can not be solved by requiring these scientists to publish twice, i.e., once in journals, and again by writing DoD technical reports.

The procedures for handling journal reprints by OAR organizations can be described under two broad methods. First, the sponsoring organization will issue reprints of journal articles as one of their technical reports and make primary distribution. In the second method, authors are allowed to buy a certain quantity of reprints and make primary distribution based upon a distribution list furnished by the sponsoring organization.

One big problem with the initial distribution is the difficulty of maintaining adequate distribution lists. Ideally each reprint and report should have its own distribution list. This, however, under present circumstances is not possible and economically not feasible. Hence OAR also deposits journal reprints with the

Defense Documentation Center (DDC). This is the agency responsible for "secondary"\* distribution of DoD research reports. In the case of reprints, DDC treats them as single reports, i.e., catalogs, microfilms, indexes and announces them in a publication known as Technical Abstracts Bulletin (TAB). DDC has not always provided hard copies of journal article reprints to the customers of DDC services. OAR's concern that this practice may prevent potential users from having access to OAR research results prompted this study.\*\*

#### THE HYPOTHESIS

With this background in mind the study was designed to test the validity of the following hypothesis:

"All known professional journals in which OAR sponsored researchers normally publish are available (on-shelf) in the defense-oriented research libraries."

The proof of this hypothesis would allow us to conclude that OAR's concern over the distribution of journal reprints is not justified. On the other hand, the failure to prove this hypothesis would help us to establish a need for some sort of action to make our research results more readily available to those people.

#### PRIMARY FINDINGS

The data obtained in the survey and analysed in this study does not support the stated hypothesis. Instead it shows that:

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\*Secondary distribution consists of furnishing copies on request.

\*\*Recently DDC was directed to provide copies of reprints to qualified DDC users. (Reference: Director of Defense Research and Engineering Memorandum, Subject: Processing of Reprints by the Defense Documentation Center, 26 October 1965, to the Director of Defense Supply Agency.) The results of this study confirm the need for this action.



1. Less than 50% of those journals in which OAR sponsored research has been published are "on-shelf" in libraries. The most notable lack of these journals has been found in the military and industrial research libraries.

2. The first twenty-five leading journals, which together publish more than 52% of OAR findings, have been found in an average of 112 technical libraries, or 56% of the total surveyed population. On one extreme of the spectrum the leading journal (Physical Review), which published 430 OAR sponsored articles, (8% of the total) has been found in 158 libraries (80% of the total responding population). On the other extreme, the 12th ranking journal (Atti Contributi Nazionale De Ottica), which published 71 (approximately 1.3%) OAR sponsored articles, was found in only 6 (3%) technical libraries.

3. The universities as a group subscribe to more than 50% of the surveyed journals (Figures 1 and 2). The next two figures (Figures 3 and 4) which show the density of library holdings indicate that the majority of university libraries have between 101 and 500 of the surveyed journals; 14% have less than 100 journals; no one library carries more than 500 journals.

4. The industrial technical libraries carry about 20% of the surveyed journals; only one library has more than 50% (328). Most of the holdings are evenly divided in the 0-100 and 101-200 holdings categories, i.e., 48% of industrial libraries have less than 100 of the surveyed journals and another 44% hold more than 100 but less than 200 journals.

5. Most of the technical libraries in the Department of Defense carry less than 25% of the journals. Some 87% of Army libraries, 75% of the Navy libraries, and 93% of Air Force libraries hold less than 200 (approximately 38%) of these journals.

Institutions (Types)	Total Libraries	Total No. of Journal Issues	Average No. of Journals Per Library
Universities (1)	56	15,519	278
Industry (2)	71	7,320	103
Government* (3) (Non-DoD)	14	2,037	145
Army (6)	18	1,622	90
Navy (7)	12	1,420	118
Air Force (5)	14	1,709	122
NASA (8)	7	1,177	169
Others** (9)	7	1,249	178

\*Such as NBS, AEC, FAA, NIH, etc.

\*\*Such as Engineering Societies Library, Lovelace Foundation, etc.

Figure 1

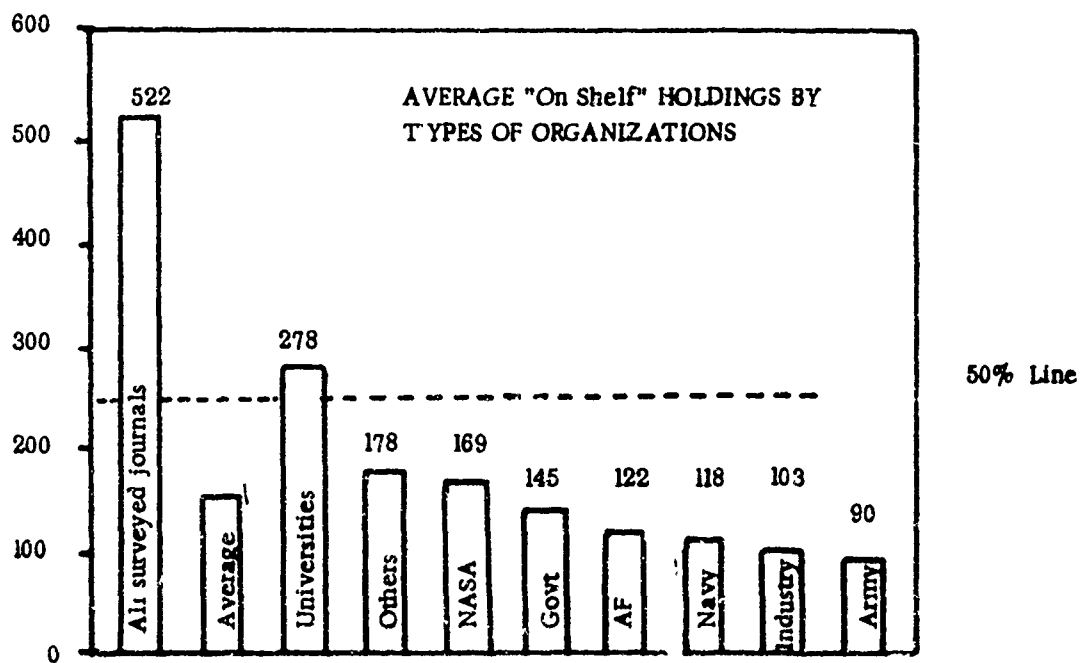


Figure 2

Type	Univer- sity	Industry	NASA	Army	Navy	Air Force
Ranges of holdings of the surveyed journals	501-600					
	401-500	14				1
	301-400	14	1			
	201-300	9	5	2	2	3
	101-200	11	31	3	5	4
	0-100	8	34	2	11	5
						6
Total	56	71	7	18	12	14

\*Numbers in each square represent the number of libraries whose "on-shelf" holdings fall within the indicated range (vertical scale)

Figure 3

Type	Univer- sity	Industry	NASA	Army	Navy	Air Force
Ranges of holdings of the surveyed journals	501-600					
	401-500	25%				7%
	301-400	25%	1%			
	201-300	16%	7%	29%	11%	25%
	101-200	20%	44%	42%	28%	33%
	0-100	14%	48%	29%	61%	42%
						43%
Total	100%	100%	100%	100%	100%	100%

Figure 4

### SECONDARY FINDINGS

Although not an intended part of this study, we ranked the surveyed journals according to the frequencies of OAR published work and found a distribution worthy of a mention. This distribution (shown in Figure 5) indicates that a very large portion of OAR sponsored results is published in relatively few journals. For example, a total of 2649 articles (or 50% of the total) has been published in the first 25 ranking journals (or 4.8% of journals in which we have published). The other 95.2% of the journals carried the remaining 50% of articles. (See TAB C)

Similar distributions are indicated in a study prepared by Keenan and Atherton of the American Physical Institute\*. Since OAR research spans a wide spectrum of science, we believe our list (Appendix B) may constitute a useful guide to journal subscriptions by Defense libraries.

### CONCLUSIONS

1. The hypothesis that all professional journals in which OAR sponsored researchers normally publish are available in the defense-oriented research libraries must be rejected. Contrary evidence exists, i.e., more than 50% of journals are not readily available.

2. The university libraries are the most likely places to have OAR articles "on-shelf". The Defense and Industrial libraries are the least likely places to look for these articles.

3. The failure to prove our hypothesis shows that the long-standing OAR concern about the primary and secondary distribution of reprints has been justified.

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\*Stella Keenan and Pauline Atherton, The Journal Literature of Physics, American Institute of Physics, Document AIP/DRP PAI (1964), New York, 1964

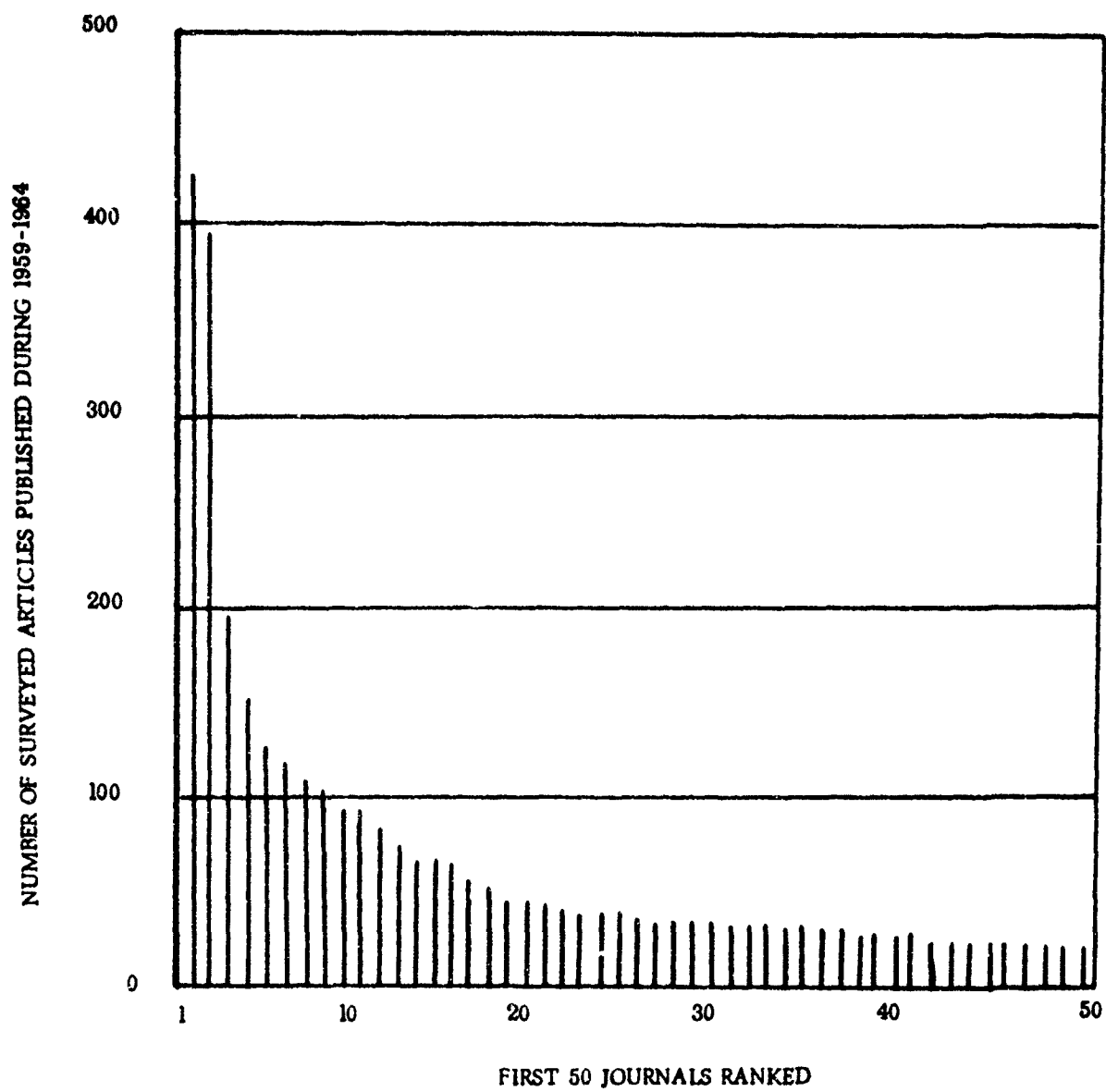


Figure 5 - Rank vs Publication Volume

TAB A

JOURNALS RANKED BY THE NUMBER  
OF OAR SPONSORED ARTICLES  
PUBLISHED BETWEEN 1959 AND 1964

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
04540	Physical Review (1)	430	152	76
03140	Journal of Chemical Physics (2)	398	135	68
00680	American Chemical Society Journal (3)	198	129	65
02980	Journal of Applied Physics (4)	148	163	82
04330	Nuovo Cimento (5)	129	93	47
04550	Physical Review Letters (6)	123	137	69
04610	Physiological Reviews (7)	110	67	34
03570	Journal of Physical Chemistry (8)	104	128	64
01320	Astrophysical Journal (9)	95	114	57
04570	Physics of Fluids (10)	93	143	72
03350	Journal of Geophysical Research (11)	84	132	66
02210	Fondazione Giorgio Ronchi. Attie Contributi Istituto Nazionale Di Optica (12)	71	6	03
04180	Nature (13)	68	141	71
04960	Review of Scientific Instruments (14)	67	158	79
00250	Acta Physiologica Scandinavica (15)	65	43	22
00110	Acta Chemica Scandinavica (16)	57	64	12
03540	Journal of Organic Chemistry (17)	55	100	50
04170	National Academy of Sciences of the U.S. Proceedings (18)	48	108	54
04390	Optical Society of America, Journal (19)	47	138	69
03450	Journal of Mathematics and Physics (19)	47	109	55
00410	AIAA (American Institute of Aeronautics and Astronautics) Journal (20)	4	149	75

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
04280	Nuclear Physics (21)	44	87	44
04580	Physics Letters (22)	42	83	42
01610	Canadian Journal of Physics (22)	42	116	58
00660	American Physical Society, Bulletin (23)	39	105	53
03210	Journal of Electroanalytical Chemistry (24)	38	67	34
00120	Acta Crystallographica (24)	38	92	46
00920	Annals of Physics (25)	37	102	51
05150	Science (26)	35	156	78
01130	Archives Italiennes De Biologie (26)	35	22	11
04040	Metallurgical Society of Aime. Transactions. (27)	34	77	39
03590	Journal of Physiology (London) (28)	33	44	22
00900	Annals of Mathematical Statistics (28)	33	96	48
03300	Journal of Fluid Mechanics (29)	32	118	59
01180	Arkiv for Fysik (29)	32	68	34
00160	Acta Metallurgica (29)	32	104	52
05280	Societa Italiana Di Biologia Sperimentale Bolletino (30)	30	19	10
02710	Inorganic Chemistry (30)	30	96	48
00090	Acoustical Society of America. Journal. (30)	30	137	69
01400	Biochemical Journal (31)	29	59	29
01290	Astronomical Journal (31)	29	87	44
01070	Archive for Rational Mechanics and Analysis (32)	28	69	35
00780	Analytical Chemistry (32)	28	135	68
00710	American Mathematical Society. Proceedings (33)	27	85	43



ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
05170	Seismological Society of America. Bulletin (34)	25	47	24
				35
04430	Pacific Journal of Mathematics (34)	25	70	
02480	IEEE (Institute of Electrical and Electronic Engineers). Proceedings (34)	25	138	69
01440	Biochimica Et Biophysica Acta (34)	25	50	25
05100	Royal Society (London). Proceedings Series A) Mathematical and Physical Sciences (35)	24	121	61
02030	Electroencephalography and Clinical Neurophysiology (35)	24	37	19
00720	American Mathematical Society. Transactions. (35)	24	80	40
04480	Philosophical Magazine (36)	23	111	56
03030	Journal of Atmospheric and Terrestrial Physics (36)	23	96	48
01280	Astronautics & Aeronautics (37)	22	126	63
01530	Bulletin of Mathematical Biophysics (38)	20	54	27
00640	American Mathematical Society. Bulletin (38)	20	89	45
04530	Physica (39)	19	91	46
02230	Franklin Institute. Journal. (39)	19	127	64
01820	Communications on Pure and Applied Mathematics (39)	19	102	51
04970	Reviews of Modern Physics (40)	18	140	70
01980	Duke Mathematical Journal (40)	18	69	35
05110	Royal Society (London). Proceedings Series B) Biological Sciences (41)	17	71	36
04620	Planetary and Space Science (41)	17	93	47
03440	Journal of Mathematics and Mechanics (41)	17	94	47
01680	Chemical Society. Journal (41)	17	90	45

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES		ACC N
			Number	% Total Survey (199)	
02520	IEEE. Transactions on Automatic Control (42)	16	110	55	0
01600	Canadian Journal of Mathematics (42)	16	61	31	0
03640	Journal of Quantitative Spectroscopy and Radiative Transfer (43)	15	76	38	0
03500	Journal of Molecular Spectroscopy (43)	15	89	45	0
03390	Journal of Inorganic and Nuclear Chemistry (43)	15	84	42	0
02510	IEEE. Transactions on Antennas and Propagation (43)	15	114	57	0
01870	Contributions to Differential Equations (43)	15	37	19	0
04270	Nuclear Instruments and Methods (44)	14	80	40	0
02060	Electrochemical Society. Journal. (44)	14	115	58	0
04070	Michigan Mathematical Journal (45)	13	50	25	0
03290	Journal of Experimental Psychology (45)	13	67	34	0
02630	Illinois Journal of Mathematics (45)	13	55	28	0
02200	Faraday Society. Transactions. (45)	13	113	57	0
00990	Applied Optics (45)	13	134	67	0
03610	Journal of Polymer Science (46)	12	96	48	0
02350	Geophysical Research (46)	12	6	03	0
02160	Experimental Neurology (46)	12	31	16	0
00670	American Ceramic Society. Journal (46)	12	118	59	0
04990	Revista Geofisica Pura E Applicata (47)	11	8	04	0
03830	Language and Speech (47)	11	23	12	0
02170	Experientia (47)	11	41	21	0
01200	Arkiv for Kemi (47)	11	43	22	0
03760	Journal of Mathematical Physics (48)	10	87	44	0

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
03520	Journal of Neurophysiology (48)	10	51	26
03430	Journal of Mathematical Analysis and Applications (48)	10	89	45
02620	IEEE. Wescon (Western Electric Show and Convention) Convention Record (48)	10	85	43
00490	American Documentation (48)	10	118	59
00060	Academie Des Sciences Comptes Rendus Hebdomadaires Des Seances (48)	10	76	38
05400	Spectrochimica Acta (49)	9	78	39
03510	Journal of Neurochemistry (49)	9	29	15
03320	Journal of General Physiology (49)	9	55	28
03180	Journal of Comparative and Physiological Psychology (49)	9	57	29
02920	Journal of Abnormal and Social Psychology (49)	9	58	29
02190	Faraday Society. Discussions (49)	9	102	51
02090	Endocrinology (49)	9	42	21
00910	Annals of Mathematics (49)	9	81	41
00540	American Journal of Physiology (49)	9	69	35
05680	Zeitschrift Fuer Kristallographie Kristallgeometrie (50)	8	57	29
05520	Topology (50)	8	42	21
05210	SIAM Society for Industrial and Applied Mathematics. Journal (50)	8	105	53
04520	Physical Society of Japan. Journal. (50)	8	57	29
04320	Numerische Mathematik (50)	8	80	40
03120	Journal of Chemical Education (50)	8	87	44
02680	Information and Control (50)	8	96	48
02590	IEEE, Transactions on Microwave Theory and Techniques (50)	8	112	56

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES		AC
			Number	% Total Survey (199)	
02540	IEEE, Transactions on Circuit Theory (50)	8	109	55	
02490	IEEE, Transactions on Applications and Industry (50)	8	68	34	
01800	Combustion and Flame (50)	8	86	43	
01500	British Journal of Pharmacology and Chemotherapy (50)	8	27	14	
01310	Astrophysica Norvegica (50)	8	26	13	
01190	Arkiv for Geofysik (50)	8	38	19	
01090	Archives of Biochemistry and Biophysics (50)	8	61	31	
00700	American Statistical Association. Journal. (50)	8	98	49	
00550	American Journal of Psychology (50)	8	66	33	
00530	American Journal of Physics (50)	8	141	71	
00180	Acta Neurologia Latinoamericana (50)	8	8	04	
05740	Zeitschrift Fuer Zellforschung Und Mikroskopische Anatomie (51)	7	27	14	
05720	Zeitschrift Fuer Physik (51)	7	97	49	
05480	Tetrahedron (51)	7	66	33	
05320	Societe Royale Des Sciences De Liege Memoires. (51)	7	25	13	
04600	Physical Society (London). Proceedings (51)	7	104	52	
04500	Phonetica (51)	7	22	11	
04440	Perceptual and Motor Skills (51)	7	56	28	
04360	Ohio Journal of Science (51)	7	31	16	
04220	New York Academy of Sciences Annals (51)	7	53	27	
03690	Journal of Speech and Hearing Research (51)	7	29	15	
03240	Journal of Endocrinology (51)	7	35	18	
03230	Journal of Embryology and Experimental Morphology (51)	7	32	16	

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
02840	International Journal of Heat and Mass Transfer (51)	7	93	47
02560	IEEE, Transactions on Electronic Computers (51)	7	115	58
02390	Heat Transfer and Fluid Mechanics Institute Proceedings (51)	7	52	26
01410	Biochemical Pharmacology (51)	7	34	17
01390	Biochemical and Biophysical Research Communications (51)	7	51	26
01120	Archives Internationales De Physiologie Et De Biochemie (51)	7	23	12
00840	Annales D'Astrophysique (51)	7	48	24
00820	Animal Behaviour (51)	7	40	20
00500	American Journal of Mathematics (51)	7	85	43
05730	Zeitschrift Fuer Vergleichende Physiologie (52)	6	29	15
05070	Royal Astronomical Society. Monthly Notices. (52)	6	56	28
04830	Quarterly Journal of Experimental Psychology (52)	6	44	22
04080	Progress in Astronautics and Rocketry (52)	6	35	18
04630	Plant Physiology (52)	6	41	21
03990	Mathematische Annalen (52)	6	57	29
03620	Journal of Psychology (52)	6	48	24
03550	Journal of Personality (52)	6	40	20
03130	Journal of Chemical and Engineering Data (52)	6	92	46
03070	Journal of Biological Chemistry (52)	6	73	37
02340	Geophysics (52)	6	79	40
02140	Experimental Cell Research (52)	6	49	25

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
01970	Development in Mechanics (52)	6	23	12
01730	Chemistry and Industry (52)	6	78	39
01690	Chemical Society. Proceedings (52)	6	93	47
01250	Association for Computing Machinery. Journal. (52)	6	107	54
01240	Association for Computing Machinery Communications (52)	6	89	45
01000	Applied Physics Letters (52)	6	127	64
00980	Applied Mechanics Reviews (52)	6	129	65
00150	Acta Mathematica (52)	6	60	30
05660	Zeitschrift Fur Flugwissenschaften (53)	5	53	27
05650	Zeitschrift Fuer Astrophysik (53)	5	56	28
05370	Solid State Communications (53)	5	77	39
05330	Society for Experimental Biology and Medicine. Proceedings (53)	5	50	25
05090	Royal Meteorological Society Quarterly Journal. (53)	5	59	30
04870	Radiation Research (53)	5	78	39
04560	Physica Status Solidi (53)	5	60	30
04030	Medicina Experimentalis (53)	5	11	06
03870	Life Sciences (53)	5	42	21
03720	Journal of Ultrastructure Research (53)	5	38	19
03470	Journal of the Mechanics and Physics of Solids (53)	5	87	44
03270	Journal of Experimental Biology (53)	5	47	24
03220	Journal of Electronics and Control (53)	5	90	45
03020	Journal of the Atmospheric Sciences (53)	5	86	43
02970	Journal of Applied Meteorology (53)	5	74	37

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
02890	Israel Journal of Mathematics (53)	5	40	20
02660	Industrial and Engineering Chemistry (53)	5	139	70
02430	Human Factors (53)	5	70	35
02020	Electrochimica Acta (53)	5	54	27
01450	Biometrics (53)	5	83	42
00950	Annual Review of Physiology (53)	5	49	25
00420	AIME (American Institute of Mining, Metallurgical and Petroleum Engineers). Transactions. (53)	5	82	41
05500	Tohoku Mathematical Journal (54)	4	38	19
05440	Talanta (54)	4	70	35
05220	Smithsonian Contributions to Astrophysics (54)	4	60	30
05200	SIAM (Society for Industrial and Applied Mathematics) Review (54)	4	91	46
04770	Psychometrika (54)	4	51	26
04710	Progress of Theoretical Physics (Kyoto) (54)	4	69	35
04460	Perspectives in Biology and Medicine (54)	4	41	21
04130	Mississippi Academy of Sciences. Journal. (54)	4	13	07
04080	Microwave Journal (54)	4	69	35
03970	Mathematics of Computation (54)	4	120	60
03780	Journal of Heat Transfer (54)	4	125	63
03770	Journal of Physics and Chemistry of Solids (54)	4	90	45
03740	Journal of Verbal Learning and Verbal Behavior (54)	4	37	19
03530	Journal of Neurosurgery (54)	4	23	12
03380	Journal of Inorganic Chemistry (54)	4	49	25

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
03150	Journal of Chromatography (54)	4	78	39
03090	Journal of Cell Biology (54)	4	44	22
03060	Journal of Biochemistry (Japan) (54)	4	39	20
03050	Journal of Bacteriology (54)	4	56	28
02990	Journal of Applied Physiology (54)	4	65	33
02960	Journal of Applied Mechanics (54)	4	147	74
02940	Journal of Applied Chemistry (54)	4	91	46
02470	IEEE (Institute of Electrical and Electronic Engineers) International Convention Record (54)	4	94	47
01960	Developmental Biology (54)	4	39	20
01810	Commentarii Mathematici Helvetici (54)	4	47	24
01790	Colloques Internationaux De Centre Nat. De La Recherche Scientifique. France (54)	4	18	09
01760	Classe Di Scienze Fisiche. Milan, Italy. Rendicont. (54)	4	7	04
01650	Chemical Society of Japan. Bulletin (54)	4	54	27
01620	Canadian Mathematical Bulletin (54)	4	36	18
01330	Astrophysical Journal, Supplement Series (54)	4	40	20
01210	Arkiv for Matematik (54)	4	41	21
00340	Advances in Chemistry Series (54)	4	65	33
00220	Acta Pharmacologica Et Toxicologica (54)	4	21	11
05710	Zeitschrift Fuer Naturforschung (55)	3	83	42
05450	Technometrics (55)	3	99	50
05350	Sociometry (55)	3	44	22
05250	Sociedad Matematica Mexicana. Bulletin (55)	3	17	09
05160	Scientific American (55)	3	170	85



ACCESSION NUMBER	NAME OF JOURNAL	OAP ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
05140	Scandinavian Journal of Psychology (55)	3	22	11
05050	Rivista Di Neurologia (55)	3	2	01
04980	Revista De Ciencia Aplicada (Madrid) (55)	3	11	06
04780	Psychopharmacologia (55)	3	25	13
04750	Psychological Reports (55)	3	42	21
04650	Portugaliae Mathematica (55)	3	29	15
04260	Nuclear Fusion (55)	3	64	32
04190	Naturwissenschaften (55)	3	73	37
04160	National Bureau of Standards. Journal of Research Section D. Radio Science (55)	3	139	70
04140	Molecular Physics (55)	3	81	41
04000	Mathematische Zeitschrift (55)	3	48	24
03910	London Mathematical Society. Proceedings (55)	3	57	29
03900	London Mathematical Society. Journal (55)	3	55	28
03680	Journal of Social Psychology (55)	3	49	25
03630	Journal of Psychosomatic Research (55)	3	24	12
03110	Journal of Chemical Documentation (55)	3	90	45
02700	Ingenieur - Archiv (55)	3	53	27
02460	Icarus (New York) (55)	3	72	36
02380	Glasgow Mathematical Association Proceedings (55)	3	35	18
02370	Gazzetta Chimica Italiana (55)	3	40	20
01950	Deutsche Bunsengesellschaft Fuer Physikalische Chemie. Berichte. (55)	3	54	27
01900	Cryogenics (55)	3	93	47
01830	Computer Journal (55)	3	75	38
01590	Canadian Journal of Chemistry (55)	3	101	51

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
01490	British Journal of Applied Physics (55)	3	99	50
01430	Biochemistry (55)	3	67	34
01420	Biochemische Zeitschrift. Germany (55)	3	42	21
01300	Astronomical Society of the Pacific. Publications (55)	3	56	28
01110	Archives Internationales De Pharmacodynamie Et De Therapie (55)	3	23	12
00880	Annali Di Matematica Pura E Applicata (55)	3	34	17
00770	Analytical Biochemistry (55)	3	53	27
00630	American Sociological Review (55)	3	44	22
00610	American Scientist (55)	3	125	63
00580	American Mathematical Monthly (55)	3	99	50
00370	Advances in X-Ray Analysis (55)	3	46	23
00240	Acta Physiologica Latinoamericana (55)	3	8	04
00200	Acta Oto-Laryngologica (55)	3	21	11
05700	Zeitschrift Fuer Metallkunde (56)	2	54	27
05630	Zeitschrift Fuer Angewandte Mathematik Und Mechanik (56)	2	80	40
05490	Tetrahedron Letters (56)	2	61	31
05460	Tellus (56)	2	70	35
05430	Szeged. Egyetem. Acta Universitatis Szege Denis Acta Scientiarum Mathematicarum (56)	2	31	16
05410	Studia Mathematica (56)	2	34	17
05340	Society of Rheology. Transactions. (56)	2	45	23
05310	Societe De Biologie. Comptes Rendus Des Seances (56)	2	33	17
05230	Social Forces (56)	2	36	18
05180	Seminario Matematico Rendiconti Universita Di Padova. (56)	2	14	07

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
05020	Revue Neurologique (56)	2	14	07
04930	Regelungstechnik (56)	2	29	15
04890	Real Sociedad Espanola De Fisica Y Quimica Anales (56)	2	19	10
04880	Raketentechnik Und Raumfahrtforschung (56)	2	26	13
04860	Quarterly Reviews (London)(56)	2	71	36
04850	Quarterly Journal of Microscopical Science (56)	2	34	17
04820	Quarterly of Applied Mathematics (56)	2	112	56
04760	Psychological Review (56)	2	66	33
04730	Psychological Bulletin (56)	2	65	33
04590	Physics Today (56)	2	130	65
04510	Photographic Science and Engineering (56)	2	52	26
04380	Operations Research (56)	2	115	58
04230	Norelco Reporter (56)	2	41	21
04210	New Scientist (56)	2	75	38
04060	Metrika. (56)	2	34	17
04020	Mechanical Engineering (56)	2	135	68
03960	Mathematica Scandinavica (56)	2	42	21
03890	Logos (56)	2	16	08
03820	Language (56)	2	35	18
03800	Keramische Zeitschrift (56)	2	4	02
03700	Journal of Theoretical Biology (56)	2	45	23
03670	Journal of Scientific Instruments (56)	2	132	66
03580	Journal De Physiologie (Paris) (56)	2	20	10
03490	Journal of Metals (56)	2	114	57
03460	Journal of Mechanical Engineering Science (56)	2	52	26

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
03410	Journal of the Less-Common Metals (56)	2	72	36
03400	Journal of Laryngology and Otology (56)	2	22	11
03370	Journal of Histochemistry and Cytochemistry (56)	2	40	20
03200	Journal of Documentation (56)	2	69	35
03100	Journal of Cellular and Comparative Physiology (56)	2	49	25
03040	Journal of Auditory Research (56)	2	24	12
03000	Journal of Applied Polymer Science (56)	2	84	42
02850	International Journal of Mechanical Sciences (56)	2	70	35
02830	International Journal of Engineering (56)	2	57	29
02770	Interceram (Lubeck) (56)	2	6	03
02690	Infrared Physics (56)	2	87	44
02610	IEEE, Transactions on Nuclear Science (56)	2	114	57
02600	IEEE, Transactions on Military Electronics (56)	2	112	56
02570	IEEE, Transactions on Human Factors in Electronics (56)	2	105	53
02500	IEEE, Transactions on Communications and Electronics (56)	2	79	40
02420	Human Biology (56)	2	41	21
02290	Geofisica Pura E Applicata (Milano) (56)	2	32	16
02240	Fundamenta Mathematicae (56)	2	46	23
02100	Engineering Mechanics Division. Journal. (56)	2	20	10
01940	Deutschen Gesellschaft Fur Kreislaufforschung. Verhandlungen. (56)	2	6	03
01750	Circolo Matematico Di Palermo. Rendiconti (56)	2	31	16

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
01660	Chemical and Engineering News (56)	2	32	16
01580	Canadian Journal of Biochemistry (56)	2	44	22
01570	Cambridge Philosophical Society. (56) Proceedings	2	77	39
01550	Cahiers De Physique (56)	2	34	17
01520	Bulletin of the Atomic Scientists (56)	2	115	58
01480	British Chemical Engineering (56)	2	36	19
01470	Brain. Journal of Neurology. (56)	2	38	19
01380	Biochemica Italiana Journal (56)	2	1	.5
01370	Behavioral Science (56)	2	77	39
01170	Archiwum Mechaniki Stosowanej (56)	2	20	10
01010	Applied Scientific Research, Section A) Mechanics, Heat, Chemical Engineering, Mathematical Methods (56)	2	79	40
00970	Annual Review of Psychology (56)	2	56	28
00870	Annales De Geophysique (56)	2	47	24
00790	Anatomical Record (56)	2	44	22
00760	Analytica Chimica Acta (56)	2	78	39
00650	American Meteorological Society. Bulletin (56)	2	89	45
00620	American Society for Testing Materials, Proceedings (56)	2	106	53
00510	American Journal of Medicine (56)	2	38	19
00380	Aerospace Medicine (56)	2	84	42
00320	Advanced Energy Conversion (56)	2	84	42
00300	Acta Societatis Medicorum Upsaliensis (56)	2	9	05
00020	Academia Brasileira De Ciencias Annals (56)	2	15	08

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
05750	Zoological Society of London. Proceedings (57)	1	29	15
05670	Zeitschrift Fuer Instrumentenkunde (57)	1	38	19
05640	Zeitschrift Fuer Angewandte Mathematik and Physik (57)	1	71	36
05620	Word (New York) (57)	1	27	14
05600	Weather (57)	1	37	19
05590	Wallerstein Laboratories Communications (57)	1	24	12
05580	Vacuum (57)	1	100	50
05570	Uppsala. Vetenskapssam Haellet Iuppsala. Annales Academiae Regiae Scientiarum Upsaliensis. Kungl (57)	1	9	05
05510	Tokyo University, Earthquake Research Institute, Bulletin (57)	1	22	11
05470	Tensor (57)	1	27	14
05420	Svensk Kemisk Tidskrift (57)	1	26	13
05390	Special Libraries (57)	1	121	61
05380	Space Science Reviews (57)	1	73	37
05300	Societe Francaise De Minerologie Et De Cristallographie. Bulletin (57)	1	26	13
05270	Societa Lombarda Di Scienze Medicine E Biologiche, Atti. Supplemento (57)	1	6	03
05260	Societa Italiana Di Patologia Atti (57)	1	2	01
05190	Separatum Experientia (57)	1	2	01
05130	Scandinavian Journal of Clinical and Laboratory Investigations (57)	1	24	12
05080	Royal Danish Academy. Proceedings (57)	1	10	05
05060	Royal Astronomical Society Geophysical Journal (57)	1	54	27
05040	Rivista Di Neurobiologia (57)	1	1	.5

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
05010	Revue Canadienne De Biologie (57)	1	28	14
05000	Revista Mexicana De Fisica (57)	1	19	10
04950	Research Management (57)	1	89	45
04940	Reports on Progress in Physics (57)	1	55	28
04900	Real Sociedad Espanola De Historia Natural, Seccion Biologica. Boletir. (57)	1	6	03
04840	Quarterly Jcurnal of Mathematics (57)	1	51	26
04800	Psychosomatic Medicine (57)	1	38	19
04790	Psychophysiology Newsletter (57)	1	6	03
04740	Psychological Record Psychology (57)	1	38	19
04720	Protoplasma Physiology and Cognate Medical Sciences (57)	1	28	14
04700	Progress in Semiconductors (57)	1	60	30
04690	Progress in Elementary Particle and Cosmic Ray Physics (57)	1	34	17
04660	Postgraduate Medicine (57)	1	24	12
04640	Plasma Physics, Accelerators, Thermonuclear Research (57)	1	75	38
04490	Philosophical Transactions Series A Royal Society of London Mathematical and Physical Sciences (57)	1	83	42
04470	Philosophical Society of Washington. Bulletin (57)	1	7	04
04450	Personnel Administration (57)	1	56	28
04420	Osterreichische Ingenieur Zeitschrift(57)	1	19	10
04410	Osaka Mathematical Journal (57)	1	31	16

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
04400	Optica Acta (57)	1	50	25
04370	Oklahoma Academy of Sciences Proceedings (57)	1	24	12
04350	Odontologisk Revy (57)	1	3	02
04340	Observatory (57)	1	40	20
04310	Nukleonik (57)	1	59	30
04300	Nuclear Science and Engineering (57)	1	105	53
04290	Nuclear Science Abstracts (57)	1	139	70
04250	Nuclear Electronics (57)	1	6	03
04240	Notre Dame Journal of Formal Logic (57)	1	25	13
04200	Neurology (57)	1	26	13
04150	Monatshefte Fuer Chemie. Und Verwandte Teile Anderer Wissenschaften (57)	1	51	26
04120	Minerva Nucleare (57)	1	4	02
04110	Minerva Medica (57)	1	8	04
04090	Mind (57)	1	36	18
03980	Mathematika (57)	1	45	23
03950	Mathematical Society of Japan. Journal. (57)	1	44	22
03940	Materials Research and Standards (57)	1	122	61
03930	Management Science (57)	1	78	39
03880	Limnology and Oceanography (57)	1	44	22
03860	Library Journal (57)	1	118	59
03850	Laval Medical (57)	1	8	04
03840	Lapidary Journal (57)	1	7	04



ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Surveys (199)
03810	Kungliga Tekniska Hogskolans Handlingar (Transactions of the Royal Inst of Technology, Stockholm, Sweden) (57)	1	23	12
03790	Journal of Basic Engineering (57)	1	117	59
03730	Journal of Urology (57)	1	19	10
03660	Journal of Reproduction and Fertility (57)	1	27	14
03650	Journal Fuer Die Reine Und Angewandte Mathematik (57)	1	51	26
03560	Journal of Pharmacology and Experimental Therapeutics (57)	1	42	21
03480	Journal De Mecanique (57)	1	43	22
03420	Journal of Marine Research (Sears Foundation for Marine Research) (57)	1	46	23
03360	Journal of Glaciology (57)	1	36	18
03340	Journal of Geology (57)	1	64	32
03330	Journal of General Psychology (57)	1	47	24
03310	Journal of General Microbiology (57)	1	51	26
03280	Journal of Experimental Neurology (57)	1	3	02
03260	Journal of Engineering Psychology (57)	1	53	27
03190	Journal of Conflict Resolution (57)	1	50	25
03170	Journal of Comparative Neurology (57)	1	33	17
03160	Journal of Colloid Science (57)	1	77	39
03080	Journal of Catalysis (57)	1	60	30
02950	Journal of Applied Mathematics and Physics (57)	1	41	21
02910	Johns Hopkins Hospital. Bulletin (57)	1	29	15

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLES (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
02870	International Science and Technology (57)	1	133	67
02860	International Journal of Neuropharmacology (57)	1	15	08
02820	International Journal of Clinical and Experimental Hypnosis (57)	1	22	11
02810	International Journal of Biometeorology (57)	1	20	10
02800	International Journal of Applied Radiation and Isotopes (57)	1	77	39
02790	International Journal of American Linguistics (57)	1	24	12
02780	International Statistical Institute. Bulletin (57)	1	15	08
02750	Institut Oceanographique. Bulletin (57)	1	20	10
02740	Institute of Statistical Mathematics (57) Annals	1	25	13
02720	Inorganic Syntheses (57)	1	31	16
02650	Indian Mathematical Society, Journal (57)	1	34	17
02640	Indian Journal of Physics (57)	1	58	29
02580	IEEE, Transactions on Information Theory (57)	1	114	57
02550	IEEE, Transactions on Communications Systems (57)	1	112	56
02530	IEEE, Transactions on Biomedical Electronics (57)	1	109	55
02410	Helvetica Physica Acta (57)	1	86	43
02360	Gerontologia (57)	1	20	10
02330	Geophysical Monographs (57)	1	16	08
02320	Geological Society of America. Bulletin (57)	1	54	27

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLE (1959-1964)	SUBSCRIBING LIBRARIES	
			Number	% Total Survey (199)
02310	Geographical Review (57)	1	53	27
02300	Geofysiske Publikasjoner, Utgitt Av Det Norske Videnskaps - Akademi I Oslo (57)	1	20	10
02270	Geochimica Et Cosmochimica Acta (57)	1	65	33
02260	Genetii Psychology Monographs (57)	1	11	06
02250	General Systems Journal (57)	1	11	06
02220	Fortschritte Der Physik (57)	1	50	25
02150	Experimental Medicine and Surgery (57)	1	16	08
02130	Ergonomics (57)	1	74	37
02120	Ergebnisse Der Biologie (57)	1	26	13
02110	Epilepsia (57)	1	14	07
02080	Endeavour (57)	1	103	52
02070	Elektronische Datenverarbeitung (57)	1	9	05
02050	Electronics and Power (57)	1	35	18
02040	Electronics (57)	1	155	78
02010	Edinburgh Mathematical Society. Proceedings (57)	1	47	24
02000	Earthquake Notes (57)	1	13	07
01990	Duquesne Science Counselor (57)	1	8	04
01930	Dechema Monographien (57)	1	5	03
01920	Data Processing (Detroit) (57)	1	76	38
01910	Danish Medical Bulletin (57)	1	13	06
01890	Corrosion Et Anti Corrosion (57)	1	1	.5
01880	Corrosion (57)	1	108	54
01850	Congresso Intern. Di Medicina Aeronautica E Spaziale. Atti (57)	1		

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLE (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
01840	Condor (57)	1	31	16
01780	Collectanea Mathematica (57)	1	12	06
01770	Clinical Chemistry (57)	1	35	18
01740	Child Development (57)	1	39	20
01710	Chemische Berichte (57)	1	70	35
01700	Chemie - Ingenieur - Technik (57)	1	46	23
01670	Chemical Engineering Progress, Symposium Series (57)	1	83	42
01640	Canadian Mining and Metallurgical Bulletin (57)	1	39	20
01630	Canadian Medical Association Journal (57)	1	23	12
01560	Cambridge, Philosophical Society Biological Reviews (57)	1	39	20
01540	Cahiers D, Anesthesiologie (57)	1		
01510	British Interplanetary Society. Journal (57)	1	90	45
01460	Biometrika (57)	1	86	43
01360	Automatic Control and Automation (57)	1	44	22
01350	Australian Institute of Metals. Journal (57)	1	23	12
01340	Atompraxis (57)	1	29	15
01270	Astronautica Acta (57)	1	87	44
01230	Arzneimittel - Forschung (57)	1	22	11
01220	Armed Forces Chemical Journal (57)	1	30	15
01160	Archiv Sweizer Fuer Neurologie, Neurochirurgie Und Psychiatrie (57)	1	3	02
01150	Archives of Oral Biology (57)	1	20	10
01140	Archives of Neurology (57)	1	35	18

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLE (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
01100	Archives of General Psychiatry (57)	1	31	16
01080	Archives De Biologie. Belgium (57)	1	17	09
01060	Archive for History of Exact Sciences (57)	1	38	19
01030	Archiv Fuer Meteorologie. Geophysik Und Bioklimatologif. Ser. B (57)	1	24	12
01020	Applied Spectroscopy (57)	1	87	44
00960	Annual Review of Plant Physiology (57)	1	38	19
00940	Annual Review of Pharmacology (57)	1	34	17
00930	Annual Review of Nuclear Science (57)	1	79	40
00850	Annales D,Endocrinologie (Paris) (57)	1	21	11
00830	Annalen Der Physik (57)	1	87	44
00800	Angewandte Chemie (International Edition in English) (57)	1	87	44
00750	Analyst (57)	1	82	41
00740	Anales De La Facultad De Medicina, Montevideo (57)	1	6	03
00730	American Nuclear Society. Transactions (57)	1	68	34
00690	American Institute of Chemical Engineers. Journal (57)	1	85	43
00600	American Psychologist (57)	1	60	30
00590	American Mineralogist (57)	1	78	39
00570	American Journal of Surgery (57)	1	24	12
00560	American Journal of Science (57)	1	77	39
00460	Albert Einstein Medical Center. Journal (57)	1	11	06
00450	Alabama Academy of Sciences. Journal (57)	1	14	07
00440	Akademie Van Wetenschappen. Proceedings - Series A Mathematical Sciences (57)	1	34	17

ACCESSION NUMBER	NAME OF JOURNAL	OAR ARTICLE (1959-1964)	<u>SUBSCRIBING LIBRARIES</u>	
			Number	% Total Survey (199)
00430	Akademie Der Wissenschaften In Gottingen, Mathematisch - Physikalische Klasse, Sonderheft. Abhandlungen (57)	1	22	11
00400	Aerotechnica (57)	1	23	12
00390	Aerospace Engineering (57)	1	9	05
00360	Advances in Physics (57)	1	108	54
00350	Advances in Enzymology and Related Subjects of Biochemistry (57)	1	45	23
00330	Advances in Aerospace Sciences (57)	1	36	10
00280	Acta Psychiatrica Et Neurologica Scandinavica (57)	1	12	06
00260	Acta Physiologica Scandinavica, Supplements (57)	1	32	16
00230	Acta Physica Polonica (57)	1	39	20
00210	Acta Pathologica Et Microbiologica Scandinavica, Supplementum (57)	1	30	15
00170	Acta Neurol. Et Psychiat. Belgica (57)	1	8	04
00140	Acta Endocrinologica (57)	1	35	18
00130	Acta Embryologiae Et Morphologiae Experimentalis (57)	1	18	09
00100	Acta Anaesthesiologica Scandinavica (57)	1	17	09
00050	Academie Suisse Des Sciences Medicales. Bulletin (57)	1	1	.5
00030	Academie Royale De Medecine De Belgique. Bulletin (57)	1	7	04
00010	Academie Royale De Belgique, Classe Des Sciences, Memoires (57)	1	25	13

**TAB B**

**LIBRARIES & THEIR HOLDINGS**  
**(Ranked by the number of "On Shelf" Journals)**

Rank	Name	No of Journals	Code*	Accession No.
1	University of Michigan Ann Arbor Mich	482	1	00450
2	Air Force Cambridge Research Labs Bedford Mass.	473	5	00011
3	University of Minnesota Minneapolis Minn	455	1	00490
4	University of Wisconsin Madison Wisconsin	449	1	00820
5	Ohio State University Libraries Columbus Ohio	439	1	00580
6	University of Washington Library Seattle Washington	428	1	00800
7	University of Florida Libraries Gainesville Fla	427	1	00290
8	Linda Hall Library Kansas City Mo	423	9	02300
9	Iowa State Univ of Science & Technology. Ames Iowa	419	1	00372
10	Florida State University Library Tallahassee Florida	413	1	00292
11	Pennsylvania State University University Park Penn	412	1	00590
12	Duke University Library Durham NC	409	1	00270
13	Brown University Providence RI	406	1	00060
13	California Institute of Technology Pasadena Calif	406	1	00100
14	University of North Carolina Raleigh NC	402	1	00560

*1-University	3- Government (other than DoD)	6- Army	8- NASA
2-Industry	5- Air Force	7- Navy	9- Others



Rank	Name	No of Journals	Code*	Accession No.
15	The Johns Hopkins University Baltimore Md	401	1	00380
16	University of Missouri Library Columbia Mo	398	1	00500
17	Oklahoma State University Stillwater Oklahoma	393	1	00582
18	Stanford University Library Stanford Calif	390	1	00700
18	Wayne State University Library Detroit Mich	390	1	00810
19	University of Colorado Libraries Boulder Colo	384	1	00180
20	University of Texas Austin Texas	374	1	00728
21	New York Public Library-Div E New York NY	370	9	02320
22	University of Virginia Charlottesville Va	368	1	00790
23	University of California Los Alamos New Mexico	366	1	00080
24	Cornell University Library Ithaca NY	359	1	00230
25	Georgia Institute of Technology Atlanta Ga	351	1	00340
26	Texas Tech College Lubbock Texas	334	1	00740
27	US Atomic Energ. Commission Argonne Ill	332	3	01740
28	Lehigh University Library Bethlehem Penn	329	1	00410
29	Carnegie Inst of Technology Pittsburgh Pa	320	1	00120

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Rank	Name	No of Journals	Code*	Accession No.
30	Bell Telephone Laboratories Inc New York NY	307	2	00940
31	Naval Research Laboratory Washington, DC	299	7	02070
32	Jet Propulsion Lab Pasadena Calif	292	8	01870
33	US Army Missile Command Redstone Arsenal Alabama	290	6	01710
34	Montana State College Library Bozeman Montana	285	1	00520
35	Case Institute of Technology Cleveland Ohio	279	1	00130
35	Yale University Library New Haven Conn	279	1	00840
36	University of Kansas Libraries Lawrence Kansas	278	1	00390
37	National Bureau of Standards Washington DC	272	3	02002
38	University of Wyoming Library Laramie Wyoming	269	1	00830
39	Texas Christian University Ft Worth Texas	258	1	00730
40	Lockheed Missiles & Space Co Palo Alto Calif	255	2	01250
41	University of Arkansas Fayetteville Arkansas	252	1	00030
42	Stanford Research Institute Menlo Park California	250	1	00672
42	Goddard Space Flight Center-NASA Greenbelt Md	250	8	01940
43	Sandia Corp Albuquerque NMex	249	3	02210

\*See page B-1

Rank	Name	No of Journals	Code*	Accession No.
44	General Electric Co King of Prussia Pa	247	2	01130
45	National Institutes of Health Bethesda Md	240	3	02010
46	University of California Lawrence Radiation Lab Livermore Calif	237	1	00082
47	General Dynamics/Astronautics San Diego Calif	220	2	01072
47	US Naval Ordnance Test Station China Lake Calif	220	7	02064
48	University of Maryland College Park Md	216	1	00420
49	US Navy Electronic Laboratory San Diego Calif	214	7	02100
50	US Army Chemical Research Dev Lab Edgewood Arsenal, Md	213	6	01660
51	Westinghouse Electric Corp Pittsburgh Pa	209	2	01580
52	Republic Aviation Corp Farmingdale LI NY	208	2	01450
53	Aberdeen Proving Ground Aberdeen Proving Ground Md	197	6	01600
54	US Patent Office Wash DC	194	3	02170
55	University of Toledo Toledo Ohio	191	1	00760
56	University of Denver Denver Colorado	190	1	00260
57	Michigan Technological University Houghton Mich	187	1	00470
58	Southwest Research Institute San Antonio Texas	183	1	00670

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Rank	Name	No of Journals	Code*	Accession No.
58	Langley Research Center-NASA Hampton Va	183	8	01960
59	The Boeing Co-Aerospace Div Seattle Washington	179	2	00970
60	General Dynamics Corp San Diego Calif	177	2	01090
60	TRW Space Technology Lab Inc Redondo Beach California	177	2	01474
61	Lewis Research Center-NASA Cleveland Ohio	175	8	01970
62	Aerojet-General Corp Azusa Calif	172	2	00860
63	North American Aviation Inc Downey Calif	171	2	01350
64	European Office of Aerospace Research Brussels Belgium	167	5	00271
64	Technical Library-Picatinny Arsenal Dover New Jersey	167	6	02180
65	Memorial University St Johns Newfoundland	166	1	00440
65	Phillips Petroleum Co Idaho Falls Idaho	166	2	01408
65	National Bureau of Standards Boulder Colo	166	3	02000
66	Aerospace Research Laboratories Wright-Patterson AFB Ohio	163	5	00009
67	Philco Corporation-Aeronutronic Newport Beach Calif	155	2	01406
68	Lockheed-Georgia Co Marietta Georgia	152	2	01242
69	Douglas Aircraft Company Inc Santa Monica Calif	150	2	01050
69	Hughes Aircraft Co Culver City Calif	150	2	01200

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Rank	Name	No of Journals	Code*	Accession No.
69	Biological Labs Ft Detrick Md	150	6	01750
69	Technical Library White Sands Missile Range, NMex	150	6	02260
70	AEDC (ARO Inc) Arnold AFS Tenn	147	2	00850
71	Parma Rsch Center Union Carbide Corp Cleveland Ohio	146	2	01404
72	General Dynamics/Ft Worth Ft Worth Texas	145	2	01100
73	Sperry Rand Research Center Sudbury Mass	142	2	01480
74	Stevens Institute of Technology Hoboken NJ	139	1	00710
74	Geophysics Corp of America Bedford Mass	139	2	01160
75	Air Force Flight Test Center Edwards AFB Calif	137	5	00012
76	Air Proving Ground Center Eglin AFB Fla	136	5	00015
77	David Sarnoff Research Center-RCA Princeton NJ	135	2	01409
78	Grumman Aircraft Engineering Corp Bethpage LI NY	134	2	01190
79	NASA (ATC3-10) Wash DC	132	8	01930
80	Fresno State College Fresno Calif	130	1	00320
81	Naval Weapons Laboratory Dahlgren Va	128	7	02090

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Rank	Name	No of Journals	Code*	Accession No.
82	American Oil Co Whiting Ind	123	2	00890
82	Rocketdyne-North American Aviation Inc Canoga Park Calif	123	2	C1354
83	Minneapolis-Honeywell Regulator Co Minneapolis Minn	122	2	01310
84	Texas Western College University of Texas El Paso Texas	120	1	00750
84	Aerojet General Corp Sacramento Calif	120	2	00870
84	Allison Division-GMC Indianapolis Indiana	120	2	00872
84	Rome Air Development Center Griffiss AFB NY	120	5	01461
85	Knolls Atomic Power Lab Schenectady NY	119	2	01226
86	Office of Research Analyses Holloman AFB NMex	118	5	01371
87	US Army Library Pentagon Wash DC	117	6	01690
88	AVCO Everett Research Lab Everett Mass	116	2	00910
88	Engineering Societies Library New York NY	116	9	02280
89	New York University New York NY	115	1	00530
89	US Naval Ordnance Laboratory Corona Calif	115	7	02050
90	McDonnell Aircraft Co St Louis Mo	113	2	01260
90	Enoch Pratt Free Library Baltimore Md	113	9	02290

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Rank	Name	No of Journals	Code*	Accession No.
91	Cornell Aeronautical Lab Inc Buffalo NY	112	1	00220
92	US Navy Underwater Sound Laboratory New London Conn	111	7	02130
93	New Mexico Institute of Mining & Tech Socorro NMex	109	1	00522
94	The B. F. Goodrich Co Brecksville Ohio	108	2	01180
95	Babcock and Wilcox Co Lynchburg Va	106	2	00912
96	Ling-Temco-Vought Inc Dallas Texas	105	2	01230
97	National Center for Atmospheric Research Boulder Colorado	104	3	02008
97	ONR Wash DC	104	7	02160
98	Bell Aerosystems Co Buffalo NY	103	2	00920
99	Air Force Office of Scientific Research Wash DC	102	5	00013
99	Owens-Illinois Research Library Toledo Ohio	102	2	01400
99	Pacific Aerospace Library Institute for Aeronautical Sciences Los Angeles Calif	102	2	01402
99	Seattle Public Library Seattle Wash	102	9	02340
100	Geophysical Institute University of Alaska College Alaska	99	1	00044
101	US Dept of Commerce Weather Bureau Wash DC	98	3	01800
102	Universal Oil Products Co Des Plaines Ill	97	2	01560

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Rank	Name	No of Journals	Code*	Accession No.
102	US Geological Survey Library Denver Colorado	97	3	01744
103	US Geological Survey Menlo Park Calif	95	3	01742
104	Columbia University New York NY	92	1	00210
105	St Lawrence University Canton NY	90	1	00660
105	Douglas Aircraft Co Long Beach Calif	90	2	01040
106	Princeton University Forrestal Research Center Princeton NJ	88	1	00630
106	Defense and Space Center Westinghouse Electric Corp Baltimore Md	83	2	01570
106	NAFEC Atlantic City NJ	88	3	01920
107	Goodyear Aerospace Akron Ohio	87	2	01186
108	ONR Chief, Bureau of Ships Wash DC	86	7	02220
109	Foreign Technology Division Wright Patterson AFB Ohio	85	5	00293
109	The Boeing Co Renton Wash	85	2	00980
110	Northrop Aircraft Inc Rawthorne Calif	82	2	01360
110	NASA Manned Spacecraft Center Houston Texas	82	8	01980
111	United Technology Center Sunnyvale Calif	79	1	00770
112	The Boeing Co Wichita Kansas	78	2	00990

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Rank	Name	No of Journals	Code*	Accession No.
112	Technical Library Dugway Proving Grounds Utah	78	6	01820
113	Vitro Laboratories West Orange, New Jersey	71	2	01566
113	Wyandotte Chemicals Corp Wyandotte Mich	71	2	01590
114	Bell and Howell Research Center Pasadena Calif	69	2	00930
115	Univac-Div of Sperry Rand Corp St Paul Minn	68	2	01550
116	Callery Chemical Corp Callery Pa	67	2	01020
116	San Diego Public Library San Diego Calif	67	9	02330
117	US Naval Air Development Center Johnsville Pa	66	7	02030
118	Arctic Aeromedical Lab Seattle Wash	64	5	01730
119	G.C. Marshall Space Flight Cen-NASA Redstone Arsenal Ala	63	8	01990
120	The Lovelace Foundation Albuquerque NMex	58	9	02310
121	US Bureau of Mines Petroleum Research Center Bartlesville Okla	56	3	01910
122	Bendix Products Aerospace Div South Bend Indiana	53	2	00950
123	Research Center Library Engr Waterways Experimental Station Vicksburg Miss	52	6	01830
124	Atlantic Research Corp Alexandria Virginia	51	2	00902
125	6571st Aeromedical Research Holloman AFB NMex	50	5	00008
125	Thiokol Chemical Corp Brigham City Utah	50	2	01506

\*See page B-1

Rank	Name	No of Journals	Code*	Accession No.
126	National Steel Corp Weirton WVa	49	2	01340
127	Hq Air Force Systems Command Wash DC	47	5	00014
127	California Institute of Technology Pasadena Calif	47	1	00110
127	Evans Research & Dev Corp New York NY	47	2	01070
128	Sylvania Electric Products Inc Buffalo NY	46	2	01502
129	AC Spark Plug Div-GMC Milwaukee Wisc	45	2	00842
130	Sundstrand Aviation-Denver Denver Colorado	44	2	01500
131	US Army Natick Laboratories Natick Lab Hq Mass	42	6	01720
132	University of Toronto Toronto Canada	39	1	00584
132	Giannini Controls Corp Duarte Calif	39	2	01170
132	Isotopes Inc Westwood NJ	39	2	01220
133	Stanford Research Institute Southern Calif Labs South Pasadena Calif	36	1	00680
134	Walter Reed Medical Center Wash DC	34	6	02200
135	Aeromed Research Unit Ft Rucker Ala	33	6	01610
136	Booz Allen Applied Research Inc Bethesda Md	32	2	01000

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Rank	Name	No of Journals	Code*	Accession No.
136	Northrops Nortronics Needham Heights Mass	32	2	01370
137	General Electric Co Wash DC	30	2	01110
137	US Navy Training Device Center Port Washington, LI NY	30	7	02120
138	Transportation Res Command Ft Eustis Virginia	29	6	02240
139	Federal Aviation Agency Wash DC	27	3	01840
140	American Machine & Foundry Co Stamford Conn	26	2	00880
140	Institute of Naval Studies Cambridge Mass	26	7	02080
141	Space Systems Division Los Angeles Calif	24	5	01473
141	US Army Air Defense Human Research Unit Ft Bliss Texas	24	6	01640
142	Hq TAC Langley AFB Va	23	5	01850
143	Bjorksten Research Labs Madison Wisconsin	22	2	00960
143	Solar Aircraft Co San Diego Calif	22	2	01472
144	David Taylor Model Basin Wash DC	21	7	01770
145	Medical Tech Library Madigan General Hospital Ft Lewis Washington	19	6	01880
145	Wallops Station Wallops Island Va	19	3	02250

\*See page B-1

TAB C

DISTRIBUTION OF PUBLISHED  
OAR SPONSORED ARTICLES AMONG  
522 JOURNALS

Number of Journals Publishing Identical Number of OAR Articles	Number of OAR Articles Published in Each of these Journals	Total of Published OAR Articles	Publ
185	1	185	
78	2	156	
42	3	126	
33	4	132	
22	5	110	
20	6	120	
21	7	147	
19	8	152	
9	9	81	
6	10	60	
4	11	44	
4	12	48	
5	13	65	
2	14	28	
5	15	75	
2	16	32	
4	17	68	
2	18	36	
3	19	57	
2	20	40	
1	22	22	
2	23	46	
3	24	72	
4	25	100	
1	27	27	
2	28	56	
2	29	58	
3	30	90	
3	32	96	
2	33	66	
1	34	34	
2	35	70	
1	37	37	
2	38	76	
1	39	39	
2	42	84	
1	44	44	
1	45	45	
2	47	94	
1	48	48	
1	55	55	
1	57	57	
1	65	65	
1	67	67	
1	68	68	
1	71	71	
1	84	84	
1	93	93	
1	95	95	
1	104	104	

Number of Journals Publishing Identical Number of OAR Articles	Number of OAR Articles Published in Each of these Journals	Total of Published OAR Articles
1	110	110
1	123	123
1	129	129
1	148	148
1	198	198
1	398	398
<u>1</u>	430	<u>430</u>
522	TOTAL	5261

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13. ABSTRACT		
<p>The objective was to determine the availability of OAR sponsored research to the Air Force technological community when they are published solely in open journals. The data was obtained through a survey of technical libraries in 199 defense-oriented research establishments. The librarians were asked to mark "on shelf" each of the 522 journal titles in which OAR research is published. The findings indicate that less than 50% of these journals are readily available; that the university libraries are the most likely places for finding these journals; and that defense and industrial libraries are the least likely places to find them.</p> <p>Thus we reject the hypothesis that the professional journals in which OAR sponsored researchers normally publish are readily available (on-shelf) in defense-oriented libraries.</p>		

END